

ABSTRACT OF THE DISCLOSURE

A band-dividing unit is operable to extract a low frequency component from an input signal in order to generate overtones based on the extracted low frequency component, and is further operable to divide the extracted low frequency component into signals that belongs to different frequency bands. Each of overtone-generating units is disposed for corresponding one of the different frequency bands, and is operable to generate overtones based on an output signal from corresponding one of band pass filters. An adder adds the generated overtones to the input signal that has passed through a delay. The resulting acoustic signal is sent to the outside through a high-pass filter. One overtone-generating unit designed for a higher frequency band among the different frequency bands is set to produce the same or fewer overtones than another overtone-generating unit suited for a lower frequency band thereamong does. This feature provides an array of continuous overtones with a less amount of calculation, while collectively generating the overtones at a lower frequency that falls within the range of a speaker reproducible band.